

WHAT IS CLAIMED IS:

1. A process of forming a semiconductor wafer which inhibits the formation of surface features on a polished front side of the wafer, the process comprising the steps of:
slicing a wafer from an ingot of semiconductor material;
removing damage from at least one side of the wafer;
forming a layer of wax on a mounting surface of the polishing block;
mounting the semiconductor wafer on the mounting surface of the polishing block, said step of mounting including the steps of holding the wafer in an undeflected position, dropping the undeflected wafer so that a backside of the wafer contacts the layer of wax, and inflating a bladder to press the wafer into the wax and remove air from between the wafer and the polishing block in the wax;

polishing the front side of the wafer as mounted on the polishing block by holding the polishing block and rubbing the front side of the wafer against a polishing pad in the presence of a polishing slurry;
removing the polished wafer from the polishing block; and
cleaning the wafer.

2. A process of forming a semiconductor wafer as set forth in claim 1 wherein said step of mounting the wafer further includes the step, subsequent to said step of dropping the wafer, of centering the wafer on the polishing block.

3. A process of forming a semiconductor wafer as set forth in claim 2 wherein said step of centering the wafer includes providing a locator engageable with the wafer for centering the wafer on the polishing block.

4. A process of forming a semiconductor wafer as set forth in claim 3 further comprising the step of removing the locators from a position in which the locators are

engageable with the wafer to center the wafer subsequent to inflating the bladder to press the wafer into the wax.

5. A process of forming a semiconductor wafer as set forth in claim 1 wherein said step of mounting the wafer further comprises moving the bladder downwardly.

6. A process of forming a semiconductor wafer as set forth in claim 1 further comprising heating the wax bonding the wafer to the polishing block to a temperature and for a time selected to soften the wax and permit the wafer to move relative to the polishing block toward the relaxed configuration without breaking the bond of the wafer to the polishing block thereby to relieve stress in the wafer.

7. A process of forming a semiconductor wafer as set forth in claim 1 wherein said step of mounting the wafer is performed at atmospheric pressure.

8. Apparatus for wax mounting a semiconductor wafer on a polishing block in preparation for polishing a front side of the wafer, the apparatus comprising:

a platform for holding the polishing block with a mounting surface of the polishing block having a layer of wax thereon facing upward;

5 a wafer centering device movable relative to the platform between closed and open positions, in the closed position the wafer centering device being disposed relative to the platform for engagement with the wafer to center the wafer on the mounting surface of the polishing block;

10 a wafer pressing mechanism engageable with the front face of the wafer for pressing the wafer into the wax on the mounting surface of the polishing block.

9. Apparatus as set forth in claim 8 wherein the wafer centering device comprises locator fingers adapted to be located relative to a peripheral edge of the polishing

block and having a distal surface disposed for engagement with the wafer to center the wafer on the polishing block.

10. Apparatus as set forth in claim 9 wherein the locator fingers are shaped for engaging the peripheral edge of the polishing block for locating the distal surfaces relative to the polishing block for centering the wafer thereon.

11. Apparatus as set forth in claim 10 wherein the distal surface is angled for guiding the wafer upon engagement with the distal surface toward a centered position on the block.

12. Apparatus as set forth in claim 10 wherein the wafer centering device comprises arms mounting the locator fingers for movement relative to the platform between the closed and open positions.

13. Apparatus as set forth in claim 12 wherein the locator fingers are mounted on the arms for movement relative to the arms.

14. Apparatus as set forth in claim 13 wherein the wafer centering device further comprises springs for biasing the locator fingers outwardly from the arms.

15. Apparatus as set forth in claim 14 wherein there are two of the arms, each being mounted for pivoting motion between the open and closed positions.

16. Apparatus as set forth in claim 8 wherein the wafer pressing mechanism comprises a bladder expandable by inflation into engagement with the wafer on the mounting surface of the polishing block for pressing the wafer into the wax on the mounting surface, the bladder being disposed for engaging the wafer near a center of the wafer front face and gradually increasing the area of engagement toward a peripheral edge of the wafer as the bladder is inflated.

17. Apparatus as set forth in claim 16 further comprising a robot for
delivering the wafer to the platform and polishing block thereon and for removing the
polishing block and mounted wafer from the platform, the robot being adapted to drop the
wafer in an undeflected condition onto the wax on the mounting surface of the polishing
5 block.

18. Apparatus as set forth in claim 8 wherein the platform includes a polishing
block heater for heating the polishing block and wax on the mounting surface of the polishing
block.